

"SHOP QUEEN"

2018 Ram 2500

FULL SYNTHETIC 5W40

VIN
3C6UR5HL5JG211976

DIST./TIME ON ENGINE
62,000 miles

DIST./TIME SINCE LAST OIL CHANGE
4,000 miles



Zengine Score Details

Your results indicate fuel is present in the oil and your contamination index is higher than normal. Fuel at low values is common in cars that have direct injection fuel systems, often make short trips, or spend a high amount of time at idle such as in stop and go traffic. Fuel at higher levels can indicate a problem with fuel injectors or worn engine components. A poor contamination index is likely caused by poor timing or improper air/fuel ratio. Check your oil level on a regular basis. If it appears to be increasing, your engine should be checked by a licensed mechanic. Keeping idle time to a minimum can also help remedy this problem as well as increase fuel economy. Check your air filter to ensure it is serviceable and properly seated. Ensure you are following the oil change intervals designated by the OEM most closely related to your driving habits.



Contamination

Simply put, this is how much non-oil elements are in your oil. The main concern in this column is fuel dilution, we want to be really low.

Wear Metals

All the metal parts in the engine are moving and rubbing, the oil helps keep everything smooth. If it shows high amounts of metals, we suggest a professional take a look.

Lubricant & additives

This column provides an indication of the overall health of the oil. Poor oil health can easily lead to problems with the engine in terms of increased wear or excessive sludge build up.



Contamination index %	1.0
Silicon (Si) ppm	5
Sodium (Na) ppm	7
Potassium (K) ppm	9
Antimony (Sb) ppm	0
Manganese (Mn) ppm	1
Cadmium ppm	1
Water content %	<0.10
Ethylene glycol %	0.0
Fuel Dilution by G.C. % W	2.5

Aluminium (Al) ppm	3
Iron (Fe) ppm	25
Chromium (Cr) ppm	1
Copper (Cu) ppm	0
Lead (Pb) ppm	0
Tin (Sn) ppm	0
Vanadium (V) ppm	0
Nickel (Ni) ppm	0
Silver (Ag) ppm	0
Titanium (Ti) ppm	0

Performance Rating	5
Dispersency	95
Viscosity 100°C cSt	14.56
Phosphorus (P) ppm	985
Zinc (Zn) ppm	1173
Calcium (Ca) ppm	1086
Barium (Ba) ppm	0
Magnesium (Mg) ppm	873
Molybdenum (Mo) ppm	50
Boron (B) ppm	65

chris kendler
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USA

Date sampled
02/07/2022

Date reported
03/08/2022

Sample number
10254288

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Understanding the tests

Viscosity

Viscosity is a measure of the resistance to flow at a certain temperature and is typically measured at 100°C on engine oils. A drop of the viscosity may indicate fuel dilution caused by blow-by, engine timing or injector problems. An increase in viscosity may indicate overheating, soot loading and/or oxidation caused by poor combustion or cooling. Changes in viscosity can also be due to product mixing or use of an improper fluid.

Water

All samples are screened for water on a hot plate. If the sample crackles, this is an indication that there is water present in the sample. Sources of water include the cooling system, condensation or other outside contamination.

Fuel Dilution

Fuel dilution is indicated by a low viscosity in combination with confirmation of fuel dilution by Gas Chromatograph (GC), FTIR or SETA Flash. Fuel dilution in an oil sample indicates an injector problem.

Elemental Analysis

Inductively Coupled Plasma technique (ICP) measured very small particles (<3µm) for a variety of elements that determine the presence of wear metals, additives and contaminants such as dirt or coolant. These elements are measured in parts per million (ppm). The significance and acceptable limits of the elements are dependant on the lubricant type, make and model and application. Below are potential sources for these elements.

Dispersancy

The property that allows oil to suspend and carry away pollutants of diverse sources such as soot from combustion, metallic particles from wear, corrosion of mechanical parts, and insoluble products resulting from the aging of the oil.

Performance Rating

DP is a calculated combined performance rating (overall note), which is helpful for monitoring the performance of the lubricant

Total Base Number

The Total Base Number (TBN) is the translation of the oil alkalinity. For a lubricant in use, too low a TBN means that the oil must be changed. The result must always be compared with the initial TBN of the oil. A significant change in the TBN value can be caused by several causes such as a consumption of additives or the contamination by another lubricant with a different TBN.

Glycol / Coolant

High levels of Sodium and Potassium are indicators that coolant is present in the sample. Coolant in the engine compartment indicates an internal water leak. This is a serious problem that can result in severe engine damage.

Element

Symbol

Aluminium	Al
Barium	Ba
Boron	B
Calcium	Ca
Chromium	Cr
Copper	Cu
Iron	Fe
Lead	Pb
Magnesium	Mg
Molybdenum	Mo
Nickel	Ni
Phosphorus	P
Potassium	K
Silicon	Si
Silver	Ag
Sodium	Na
Tin	Sn
Titanium	Ti
Vanadium	V
Zinc	Zn

Possible sources

Pistons, bearings, bushings, thrust washers, rings, cylinders, engine after-cooler, dust
Rust and oxidation inhibitor additive
Anti-corrosion additive in coolant, dust, water, oil additive
Detergent/dispersant additive
Piston rings, cylinder liners, valve, rods
Bearings, bushings, oil cooler
Bearings, shafts, cylinders, gears, piston rings
Bearings, bushings, anti-wear additive
Transmissions, detergent additive
Piston rings, electric motors, oil additives
Bearings, bushings, rings
Anti-wear additive
Coolant additive
Dust, dirt
Shafts and plating
Detergent or coolant additive, Salt
Bearings, bearing cages
Bearing hub, coatings
Wear metal from alloys, coating, heavy fuel in marine applications
Anti-wear additive

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